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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/066,160 | 01/31/2002 | Steven Teig | SPLX.P0073 | 3579 |

23349 7590 10/20/2003
STATTLER JOHANSEN & ADELI
P O BOX 51860
PALO ALTO, CA 94303

EXAMINER

DINH, PAUL

ART UNIT PAPER NUMBER

2825

DATE MAILED: 10/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/066,160

Applicant(s)

TEIG ET AL.

Examiner

Paul Dinh

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9-14 is/are rejected.
- 7) ☒ Claim(s) 6-8 and 15-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objection

Claim 9 is objected to because “the estimated routing cost” lacks antecedent basis and “the identified routed” should be changed to “the identified route[d]”

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-5, 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishizuka (USP 5717600) who discloses a method/program comprising:

(Claim 1 and similarly recited claim 10)

a) identifying a (first) route for a (first) net (fig 1-7);
b) determining whether embedding the first route in a region will make a set of unrouted nets unroutable (fig 4);

c) when embedding the (first) route will make the set of unrouted nets unroutable, identifying a (second) route for the (first) net (fig 1- 7)

(Claim 9)

a) identifying a route for a net (fig 1-7);
b) determining whether to embed the identified route based on [the] an estimated routing cost (fig 4) of a set of unrouted nets in a region when the region contains the identified route[d].

(Claims 2, 11) determining whether the embedding will increase the routing cost of the set of unrouted nets beyond an acceptable cost threshold (fig 4)

(Claims 3-4, 12-13) embedding the first route in the region, removing (fig 4) the first route in the region when the embedding make the set of unrouted nets unroutable; embedding [the] a second route for the region (fig 4)

(Claims 5, 14) when embedding the (first) route will not make the set of unrouted nets unroutable; embedding the first route in the region (fig 4-7)

2. Claims 1, 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Sriram et al. (USP 6519751) who discloses a method/program comprising:

(Claim 1 and similarly recited claim 10)

a) identifying a (first) route for a (first) net (fig 1-8);
b) determining whether embedding the first route in a region will make a set of unrouted nets unroutable (c2: 25-27/fig 1-8);

c) when embedding the (first) route will make the set of unrouted nets unroutable, identifying a (second) route for the (first) net (fig 1-8)

(Claim 9)

a) identifying a route for a net (fig 1-8);
b) determining whether to embed the identified route first route based on [the] an estimated routing cost (fig 7/c3: 24-29) of a set of unrouted nets in a region when the region contains the identified route[d].

3. Claims 1-5, 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Linsker (USP 4615011) who discloses a method/program comprising:

(Claim 1 and similarly recited claim 10)

a) identifying a (first) route for a (first) net (fig 1-6);
b) determining whether embedding the first route in a region will make a set of unrouted nets unroutable (c3/c12: 22-24);

c) when embedding the (first) route will make the set of unrouted nets unroutable, identifying a (second) route for the (first) net (fig 1- 6)

(Claim 9)

a) identifying a route for a net (fig 1-6);
b) determining whether to embed the identified route based on [the] an estimated routing cost of a set of unrouted (fig 4-6/c3/c12: 22-24) nets in a region when the region contains the identified route[d].

(Claims 2, 11) determining whether the embedding will increase the routing cost of the set of unrouted nets beyond an acceptable cost threshold (fig 4/6)

(Claims 3, 12) embedding the first route in the region, removing (abstract/fig 4-6) the first route in the region when the embedding make the set of unrouted nets unroutable

Art Unit: 2825

(Claims 4, 13) embedding [the] a second route for the region (fig 4-6)

(Claims 5, 14) when embedding the (first) route will not make the set of unrouted nets unroutable; embedding the first route in the region (fig 4-6)

4. Claims 1, 5, 9-10, 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al. (USP 6543043) who discloses a method/program comprising:

(Claim 1 and similarly recited claim 10)

a) identifying a (first) route for a (first) net (fig 1-11);
b) determining whether embedding the first route in a region will make a set of unrouted nets unroutable (fig 4/c13: 1-8);

c) when embedding the (first) route will make the set of unrouted nets unroutable, identifying a (second) route for the (first) net (fig 1-11)

(Claim 9)

a) identifying a route for a net (fig 1-11);
b) determining whether to embed the identified route first route based on [the] an estimated routing cost (fig 4/c11-12) of a set of unrouted nets in a region when the region contains the identified route[d].

(Claims 5, 14) when embedding the (first) route will not make the set of unrouted nets unroutable; embedding the first route in the region (fig 4)

5. Claims 1-5, 9-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Hiraga (USP 6378121) who discloses a method/program comprising:

(Claim 1 and similarly recited claim 10)

a) identifying a (first) route for a (first) net (fig 1-9);
b) determining whether embedding the first route in a region will make a set of unrouted nets unroutable (fig 1-2, 7-9);

c) when embedding the (first) route will make the set of unrouted nets unroutable, identifying a (second) route for the (first) net (fig 1-2, 7-9)

(Claim 9)

a) identifying a route for a net (fig 1-9);

Art Unit: 2825

b) determining whether to embed the identified route first route based on [the] an estimated routing cost of a set of unrouted nets in a region when the region contains the identified route[d] (fig 1-2, 7-9)

(Claims 2, 11) determining whether the embedding will increase the routing cost of the set of unrouted nets beyond an acceptable cost threshold (fig 1-2, 9)

(Claims 3-4, 12-13) embedding the first route in the region, removing (fig 4) the first route in the region when the embedding make the set of unrouted nets unroutable; embedding [the] a second route for the region (fig 1-2, 7-9)

(Claims 5, 14) when embedding the (first) route will not make the set of unrouted nets unroutable; embedding the first route in the region (fig 1-2, 7-9)

6. Claims 1, 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Bennett et al. (USP 5659484) who discloses a method/program comprising:

(Claim 1 and similarly recited claim 10)

- a) identifying a (first) route for a (first) net (fig 2D-E, fig 4-8);
- b) determining whether embedding the first route in a region will make a set of unrouted nets unroutable (c16: 29+, c28: 50+);
- c) when embedding the (first) route will make the set of unrouted nets unroutable, identifying a (second) route for the (first) net (fig 2D-E, fig 4-8).

(Claim 9)

- a) identifying a route for a net (fig 2D-E, fig 4-8);
- b) determining whether to embed the identified route first route based on [the] an estimated routing cost of a set of unrouted nets in a region when the region contains the identified route[d] (c10: 30-47, c27: 55+, c28, fig 2D-E, fig 4-8).

7. Claims 1-5, 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasuda et al. (USP 5889677) who discloses a method/program comprising:

(Claim 1 and similarly recited claim 10)

- a) identifying a (first) route for a (first) net (fig 1-49);
- b) determining whether embedding the first route in a region will make a set of unrouted nets unroutable (fig 3/c8: 20-27/c14: 51+);

Art Unit: 2825

c) when embedding the (first) route will make the set of unrouted nets unroutable, identifying a (second) route for the (first) net (c3/fig 1-3, 36-37).

(Claim 9)

a) identifying a route for a net (fig 1-49);

b) determining whether to embed the identified route first route based on [the] an estimated routing cost of a set of unrouted nets in a region when the region contains the identified route[d] (c14/c42, fig 1-3, 36-37).

(Claims 3, 12) embedding the first route in the region, removing (fig 38) the first route in the region when the embedding make the set of unrouted nets unroutable

(Claims 3-4, 12-13) embedding the first route in the region, removing (fig 4) the first route in the region when the embedding make the set of unrouted nets unroutable; embedding [the] a second route for the region (fig (c3/fig 1-3, 36-37)

(Claims 5, 14) when embedding the (first) route will not make the set of unrouted nets unroutable; embedding the first route in the region (fig 1-3)

Allowable Subject Matter

Claims 6-8, 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims

Claims 6-8, 15-17 would be allowable because the prior art does not teach or suggest the limitation (three further steps) on lines 2-6 of claim 6 and similarly recited claim 15.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Dinh whose telephone number is (703) 305-5662. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (703) 308-1323. The fax number for the organization handling this application is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Paul Dinh
Patent Examiner


MATTHEW SMITH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800